Express Mailing Label No. EV 460261106 US

Listing of Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A hybrid assembly phase shifter comprising:

a phase delay module comprising a substrate carrying a plurality of passive, electrically conductive phase delay elements;

a MEMS module containing a plurality of MEMs switches for coupling selected ones of the phase delay elements between an input and an output; and

a low loss interconnection electrically coupling the phase delay elements of the phase delay module with the MEMS switches of the MEMS module, the low loss interconnection comprising a flip-chip interconnection.

2. (canceled)

3. (currently amended) The phase shifter of claim ~~2~~ 1 in which:

the flip-chip interconnection comprises an interconnection selected from the group consisting of solder bumps, indium bumps, plated-through holes, metal-to-metal thermocompression bonds and conductive polymer bonds.

4. (original) The phase shifter of claim 1 in which: the substrate comprises an insulating material.

5. (original) The phase shifter of claim 4 in which:

the substrate comprises a material selected from the group consisting of alumina, quartz and a microwave ceramic.

6. (original) The phase shifter of claim 1 in which: the substrate comprises a semi-insulating material.

7. (original) The phase shifter of claim 6 in which: the substrate material comprises a material selected from the group consisting of a high resistivity silicon and GaAs.

8. (original) The phase shifter of claim 1 in which: each of the plurality of passive phase delay elements comprises electrically conductive, planar transmission lines patterned on a surface of the substrate.

9. (currently amended) A phased array antenna comprising:

a substrate;

a plurality of radiators ~~formed~~ disposed on the substrate;

a plurality of passive phase shifter circuits ~~formed~~ disposed on the substrate, each of the plurality of phase shifter circuits being coupled to one of the plurality of radiators and comprising a plurality of phase delay stages connected in series between a transmission signal input and a transmission signal output to phase shift said signal, each of the phase delay stages being capable of imparting a selectable phase delay on a transmission signal so that the signal is delivered to the radiator with a cumulative phase delay determined by the sum of the phase delays imparted by the individual phase delay stages; and

a plurality of MEMS switch modules, a respective one of said MEMS switch modules being coupled to each phase delay stage and operable to electrically connect selected delay stages to provide said cumulative phase delay, the respective MEMS switch modules being coupled to said phase delay stages by low loss interconnections, the low loss interconnections comprising flip-chip interconnections.

10. (canceled)

11. (currently amended) The assembly of claim ~~10~~ 9 in which:

the flip-chip interconnections comprise interconnections selected from the group consisting of solder bumps, indium bumps, plated-through holes, metal-to-metal thermocompression bonds and conductive polymer bonds.

12. (original) The assembly of claim 9 in which:
each of the phase delay stages includes a plurality of phase delay elements comprising true time delay lines of different lengths.

13. (original) The assembly of claim 12 in which: the true time delay lines comprise electrically conductive, planar transmission lines patterned on a surface of the substrate.

14. (original) The assembly of claim 9 in which: the substrate comprises an insulating material.

15. (original) The assembly of claim 14 in which:
the substrate comprises a material selected from the group consisting of alumina, quartz and a microwave ceramic.

16. (original) The assembly of claim 9 in which:
the substrate comprises a semi-insulating material.

17. (original) The assembly of claim 16 in which: the substrate material comprises a material selected from the group consisting of a high resistivity silicon and GaAs.

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Amendments to the Drawings

The attached two sheets of drawings, each marked "REPLACEMENT SHEET" include changes to **FIGS. 2** and **3**. These sheets replace original sheets 1/3 and 2/3.

In **FIG. 2**, previously omitted reference numeral 20 has been added. In **FIG. 3**, previously omitted reference numerals 46, 48, 50, 78, 80 and 82 have been added.

Annotated sheets 1/3 and 2/3 showing the changes are also attached.

Attachments:

Replacement drawing sheets 1/3 and 2/3.

Annotated drawing sheets 1/3 and 2/3.